



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D212-664-201
Job Sheet 182142



Part No: D212-664-201

Job Qty: 1 ea

Part Name: Aft Crosstube - High



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 8/17/18

Job Tracking No:

Due Date: 9/7/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: IIN-D212-664 REV.J/ D212-664-241 REV E IPP Rev:E 04.02.16 Reformat K/DS IPP Rev:F 06-03-29 Remove
Comments on Pick List JLM IPP Rev:G 07-04-30 As per Rev C JLM IPP Rev:H 08-05-22 up date Qty of rubber
cushion DD ver:EC IPP REV:I 14.05.27 AS PER ECN14-570 DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	9/7/18	9/7/18	0.00	0.00	Start Up Crosstubes-1		DPZ 11/08/18
110	Packaging	1 pcs	9/7/18	9/7/18	0.00	0.00	Packaging1-3		DPZ 11/11/18
120	CNC Bend Crosstubes	1 pcs	9/7/18	9/7/18	0.00	4.44	CNC Bend Crosstube		DPZ 11/11/18
130	QC	1 pcs	9/7/18	9/7/18	0.00	0.00	QC15		38
140	Crosstubes	1 pcs	9/7/18	9/7/18	0.00	4.99	Crosstubes-1		DPZ 11/11/18
150	HandFXtube	1 pcs	9/7/18	9/7/18	0.00	1.25	HandFinish5		DPZ 11/11/18
160	QC	1 pcs	9/7/18	9/7/18	0.00	0.00	QC7-1		38
170	QC	1 pcs	9/7/18	9/7/18	0.00	0.00	QC5		38
180	Outsource	1 pcs	9/7/18	9/7/18			SKY002-VC	5	38
190	Packaging	1 pcs	9/7/18	9/7/18	0.00	0.00	Packaging2		NOV 23 2018
200	QC	1 pcs	9/7/18	9/7/18	0.00	0.00	QC5		38
210	SprayPaint	1 pcs	9/7/18	9/7/18	0.00	1.47	Spray Paint		38
220	QC	1 pcs	9/7/18	9/7/18	0.00	0.00	QC14		38
230	Crosstubes	1 pcs	9/7/18	9/7/18	0.00	1.47	Crosstube		38
240	QC	1 pcs	9/7/18	9/7/18	0.00	0.00	QC5		38
250	Packaging	1 pcs	9/7/18	9/7/18	0.00	0.00	Packaging1-3		DEC 03 2018
260	QC	1 pcs	9/7/18	9/7/18	0.00	0.00	QC4		DEC 03 2018
270	Packaging	1 pcs	9/7/18	9/7/18	0.00	0.00	Packaging3-1		DEC 03 2018
275	DC	1 pcs	9/7/18	9/7/18	0.00	0.00	DC		DEC 03 2018
280	QC21-FG	1 Ea	9/7/18	9/7/18	0.00	0.00	QC21		DEC 03 2018

Part Op 120 - ***VERF SET-UP BEFORE BENDING BY: *** Bend tube as per Dwg D212-664-241 using

Descriptions: CNC bender program 212-aft

140 - 1-Drill pilot holes in tube as per Dwg D212-664-241 using drill Jig DT8550, DT8551, drill table DT8577 and locate tower holes #8 as per QSI0010. 2-Ream hole to finish size in tube as per Dwg D212-664-241 using drill Jig DT8550 & DT8551. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes. 3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-241 4- ***WEAR LATEX GLOVES HANDLING CROSSTUBE.*** Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-241

150 - ***IMMEDIATELY AFTER GRINDING***

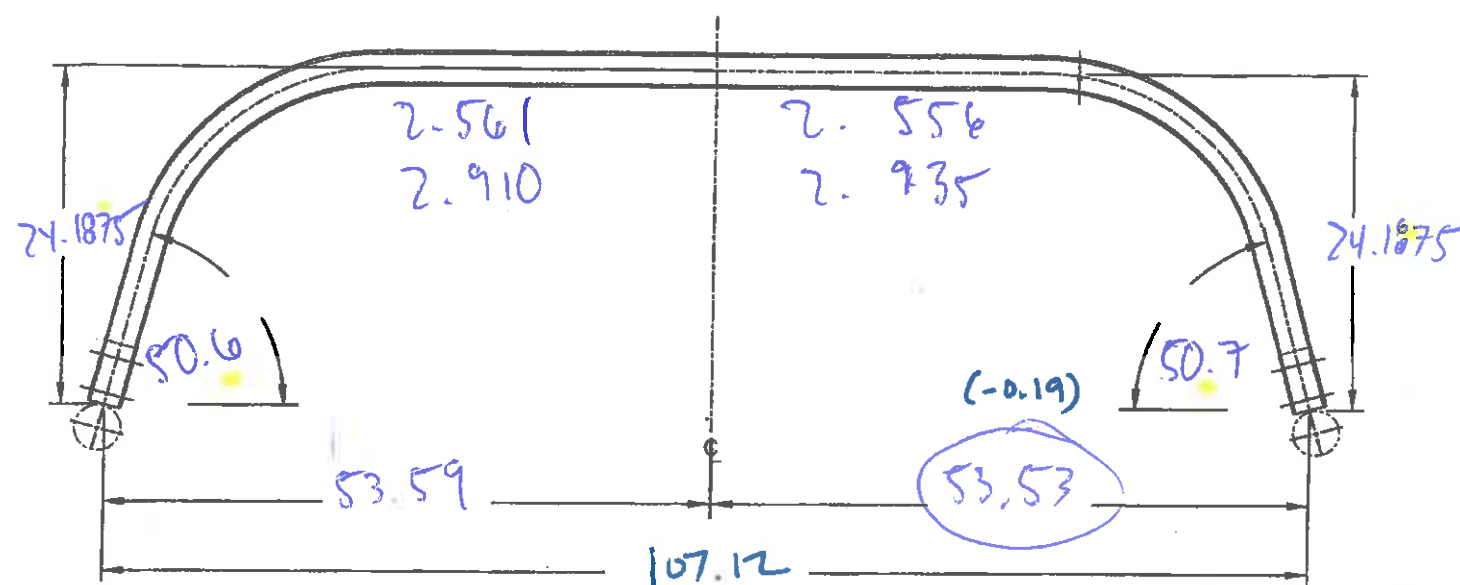
180 - ***WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.*** Issue P/O: 041608 LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2

190 - ***WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.***

200 - ***WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.*** Inspect for damage & ensure results are as per Dwg D212-664-241

DART AEROSPACE LTD		Work Order:	182142
Description: Crosstube High Aft (205/212)		Part Number:	D212-664-201
Inspection Dwg: D212-664-241 Rev: E		Page 1 of 1	

Required Dimension	Min	Max
Height	24.17	24.43
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.70
Bending Passes	5	--
Crushing	--	7.2%



	Side A	Side B
Bending Passes	18	18
Crushing	6.9%	6.9%
Comments		

QC15 Inspection	2/3
Date	18-11-12

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.08	Dimensions updated per Dwg rev. C	KJ/JLM	
C	10.04.01	Dwg Rev updated	KJ	
D	12.04.16	Added bending, crushing dimensions	KJ	
E	14.07.08	Crushing percentage revised	KJ	4

Item	Qty	Qty	Part Number	Description
1	-241	X	D212-884-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
2		X	D212-884-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)
3	1	1	D8008-129	CROSSTUBE
4	2		D2840-1	SUPPORT
5	4	4	D3595-083-630	RUBBER CUSHION
6	2	2	D5018-1	SUPPORT
7	4	4	MS21920-28	CLAMP (OR MS21920-30)
8	AR	AR	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D8008-129
FINISHED LENGTH = 124.362±0.020
- 2) FINISH: a) CHEMICAL CONVERSION COAT PER DART QSI 005.4.1
b) PRIME INSIDE AND OUTSIDE PER DART QSI 005.4.2
c) MASK UNDERSIDE OF CROSSTUBE AS SHOWN (ZN C8-2 / C8-3, HATCHED AREA)
d) PAINT OUTSIDE PER DART QSI 005.4.2
e) REMOVE MASKING AND APPLY MATTE CLEAR COAT
TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
4) UNITS: INCHES UNLESS OTHERWISE NOTED.
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
6) IDENTIFICATION: SCRIBE DART PART NUMBER 'D212-884-XXX' AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
7) WEIGHT: D212-884-241/241B = 44.2 lbs
8) PART IS SYMMETRIC ABOUT CENTERLINE.
9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
10) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
BENDING
11) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 7.2% (BASED ON O.D.) IN LOWER HALF OF R35.5 BEND AND 6% (BASED ON O.D.) ON REMAINING TUBE.
12) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
ASSEMBLY
13) INSTALL D2840-1 / D5018-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
14) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-083-630 RUBBER CUSHIONS TO SECURE THE SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE ON TOP SIDE OF CROSSTUBE.
15) TORQUE CLAMPS 80 TO 100 IN.-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

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WITHOUT NOTICE

WORK ORDER

NO. 182192

RELEASED

2014-05-26

18-08-17

E	D212-1 WAS D2840-1 (241B). PROSEAL WAS MAGNOBOND. NOTE 2: ADD INSPECTION WINDOW. NOTE 11: ALLOW 7.2% CRUSH. NOTE 16: ADD 72HR CURE AND REVERSE TO PREVENT CHAFING (ZN B7-2, B7-3). BEND HEIGHT TOL. NOW 0.28 WAS 0.13 (C1-4). INCORP DEO D-1/2	CP	14.04.01
D	REFORMAT/REVISE GENERAL NOTES/PART LIST: REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. ADD -241B (ZN D4-2, B4-2); REMOVED REF & ADD TOLERANCES (ZN D8-3 & C4-3; C8-3 & A8-3); RELOCATED FLAG #6 PER PAR D8-048 (ZN A8-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -1008 ABRASION STRIP. ADD MAGNOBOND 890. CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATIBILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	CP	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.	DW	DRAWING NO.	REV. E
APPROVED	SA	D212-884-241	SHEET 1 OF 5
DE APPR.	SA	TITLE	SCALE
DATE	14.04.01	CROSSTUBE ASSY (205/212 HI AFT)	NTS
COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DRAWING IS THE PROPERTY OF DART AEROSPACE LTD AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD.			

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

[13] [14] [15]
D2940-1 SUPPORT
MS21920-28 CLAMP, 2X
D3695-063-530 RUBBER CUSHION, 2X
2 PL

14.00

D212-864-801
BENT TUBE

MASK AREA PRIOR TO PAINTING,
REMOVE MASKING AFTER PAINT
AND APPLY CLEAR COAT

2.0

E MS21920-28
CLAMP, REF
[14] [15]

E APPLY PROSEAL
BETWEEN D2940-1 AND
CROSSTUBE

D2940-1
SUPPORT,
REF

D3695-063-530 RUBBER CUSHION
UNDER CLAMP, REF

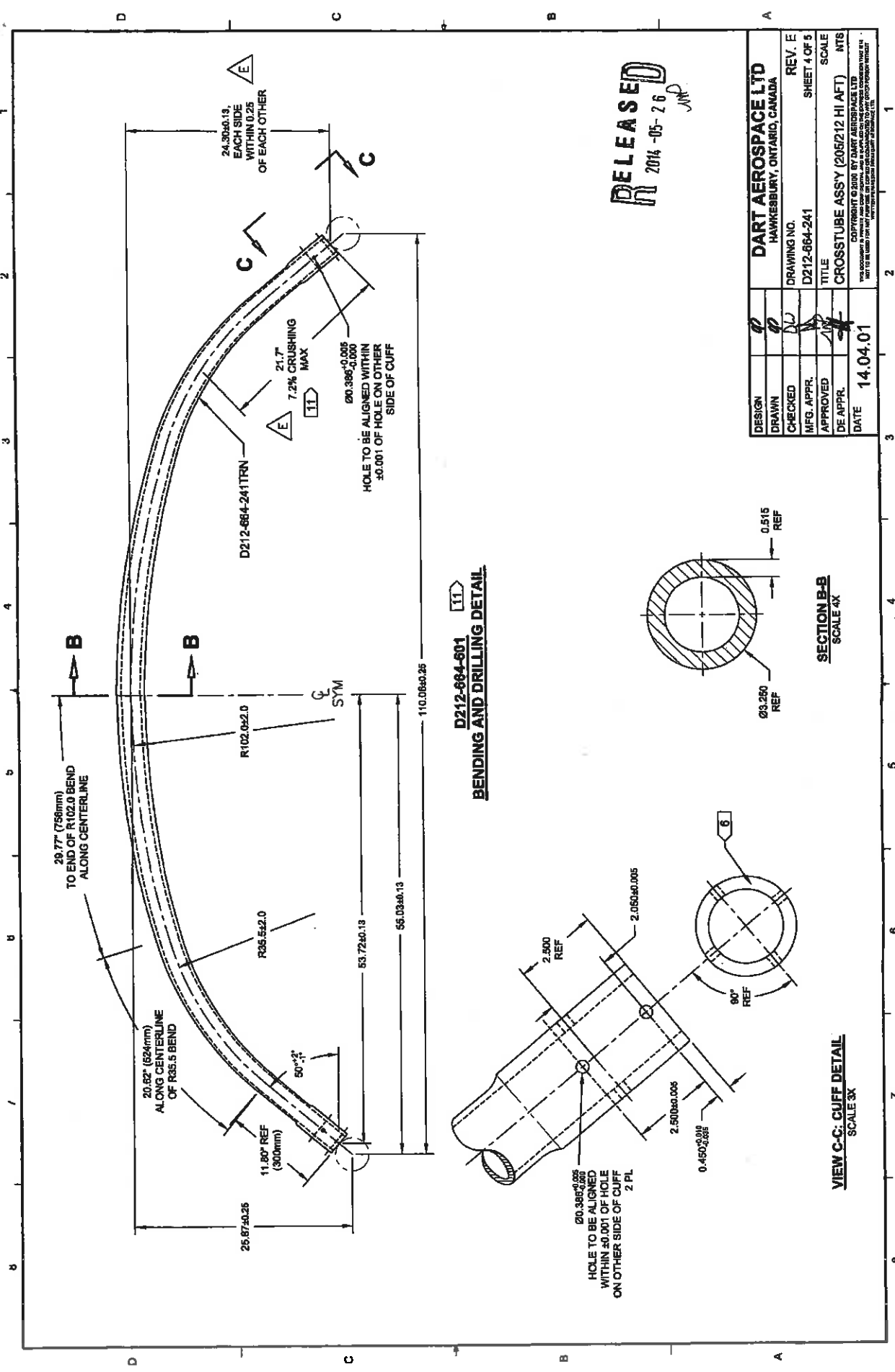
C
SYM

D212-864-241
ASSEMBLY DETAIL

RELEASED
2016-05-26
N

DESIGN	D	DART AEROSPACE LTD
DRAWN	D	HAWKESBURY, ONTARIO, CANADA
CHECKED	J/J	DRAWING NO.
MFG. APPR.	J/J	D212-864-241
APPROVED	J/J	REV. E
DE APPR.	J/J	SHEET 2 OF 3
DATE	14.04.01	TITLE
		CROSSTUBE ASSY (205/212 HI AFT)
		SCALE
		NTS
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SECTION A-A
SCALE 4X



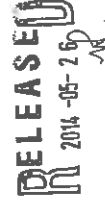
D212-664-601 11
BENDING AND DRILLING DETAIL

RELEASED
2014-05-26
JMR

DESIGN	0	DART AEROSPACE LTD	REV. E
DRAWN	0	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JL	DRAWING NO.	SHEET 4 OF 5
MFG. APPR.	JL	D212-664-241	SCALE
DE APPR.	JMR	TITLE	NTS
DATE	14.04.01	CROSSTUBE ASSY (205212 HI AFT)	

SECTION B-B
SCALE 4X

VIEW C-C: CUFF DETAIL
SCALE 8X





Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO041806

Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

PO No: PO041806
PO Date: 11/21/18
Due Date: 11/28/18

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pynt Terms: Net 30

Freight Terms:

Special Comments:

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	184457	D4884-3	End Fitting, Eye : Various STC's Outsource process - NDT per QSI038 4.1	Firmed	-	11/28/18	4 pcs	0 pcs	4 pcs	\$68.20/pcs	\$272.80
2	183453-A	D4884-1	End Fitting, Eye : Various STC's ISSUE P/O	Firmed	-	11/28/18	6 pcs	0 pcs	6 pcs	\$68.20/pcs	\$409.20
3	182141	D212-664-201	Aft Crosstube - High : TC STC SH01-9 Issue 3, FAA STC SR01298NY 09/01/08, EASA STC EASA.IM.R.S.01304 07/03/06, DGAC MEXICO STC IA-318/2015 15/06/17 ***WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.*** Issue P/O: LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2	Firmed	-	11/28/18	1 pcs	0 pcs	1 pcs	\$68.20/pcs	\$68.20
183771				Firmed	-	11/28/18	1 pcs	0 pcs	1 pcs	\$68.20/pcs	\$68.20
182139				Firmed	-	11/28/18	1 pcs	0 pcs	1 pcs	\$68.20/pcs	\$68.20
182142				Firmed	-	11/28/18	1 pcs	0 pcs	1 pcs	\$68.20/pcs	\$68.20
Sub Total:							4	0	4		\$272.80



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO041806

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
4	186378	D212-664-101	Fwd Crosstube - High : TC STC SH01-9 Issue 3, FAA STC SR01298NY 09/01/08, EASA STC EASA.IM.R.S.01304 07/03/06, DGAC MEXICO STC IA-318/2015 15/06/17 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	Firmed	-	11/28/18	1 pcs	0 pcs	1 pcs	\$68.20/pcs	\$68.20

Grand Total: \$1,023.00

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 11/21/18 3:28 PM dart.tsimiklis.chrisoula

 Work Order Traveler Sky Service F.B.O. Inc.			
10105 Ryan Avenue, Dorval, Quebec, H9P 1A2			
TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385			
WO #: MWO38261	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: R0041774
Descr:	PN:	S/N:	Qty: 1 P/O: 041806
Make:	Model:	Reg:	A/C S/N: 02 NOV 23 2018
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT (LIQUID PENETRANT CRACK TEST) ON THE FOLLOWING PARTS:

P/N: D4884-3 END FITTINGS, EYE JOB SHEET# 184457 (4 ea.) ✓
P/N: D4884-1 END FITTINGS, EYE JOB SHEET# 183453-A (6 ea.) ✓

P/N: D212-664-201 AFT CROSSTUBE - HIGH

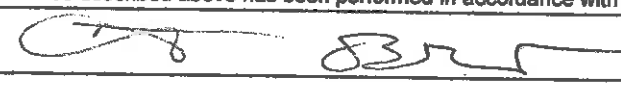
JOB SHEET# 183771 ✓ JOB SHEET# 182141 ✓
JOB SHEET# 182139 ✓ JOB SHEET# 182142 ✓

P/N: D212-664-101 FWD CROSSTUBE - HIGH

JOB SHEET# 186378 ✓

Action Taken:						Date:	Initial/Stamp:
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE AS PER ASTM1417M-16						20 NOV 2018	
NO CRACK FOUND							
PEN (ZL-56, MPO13600), DEV. (SKD-S2, MPO11715), CLEANER (SKC-S, MPO19368)							
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature: 	ACA/SCA Stamp: 	Date: 20 NOV 2018
Name: CHRISTIAN BRIEN		